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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PADGETT, MARIANNE L	

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1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,328	WILCZAK, WOJCIECH A.	
	Examiner	Art Unit	
	MARIANNE L. PADGETT	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/16/2006, 9/14/06, 12/5/06, 12/24/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/14/9, 12/24/8*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The following is a quotation of the second paragraph of **35 U.S.C. 112**:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-7, 9, 16-17 & 19-20 are rejected under 35 U.S.C. **112, second** paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In **claim 6**, hence in its dependent claim 7, the relationship of "the radiation curable vehicle" to the process as described in independent claim 1 from which claim 6 depends, is unclear, because no such "...vehicle" is applied or deposited in any of the steps of the independent claim. It is noted that claim 5 describes this limitation as being a component in radiation curable ink that is "the radiation curable composition" applied in the independent claim, however claim 6 does not depend from claim 5, hence is not formally or positively so defined. As claim 5 shows the probable intent of claims 6-7, consideration of claims 6-7 with respect to prior art may consider the radiation curable vehicle as part of the radiation curable composition for purposes of examination, but clarity in the claims is needed.

It is unclear how **claim 9** further limits independent claim 1, as a "plasma polymer coating" was already required to be provided in the independent claim, and one cannot provide it, without it having been formed. No clear necessary further limitation can be distinguished or determined from this claim, just varying semantics.

In **claims 16 & 19**, the limitation of "a radiation curled ink" (emphasis added) does not make sense, but is considered to probably contain a typographical error, i.e. "curled" instead of -- cured --. Furthermore, it appears from the claim of "a radiation cured liquid vehicle" that this component of the radiation cured composition is being required to be a liquid **after** it is **cured**, which is contrary to what is generally meant by a material being cured, especially considering the requirement that it is supposed to be a reaction product between the radiation cured composition and the plasma polymer, when the only required cured component is the liquid vehicle. Hence, as phrased the meaning is unclear or ambiguous.

Note that for the radiation cured composition to comprise a radiation cured liquid vehicle, is at best ambiguous, as it is not the necessarily same thing as the radiation cured composition to comprise a component that is the result of curing a radiation curable liquid vehicle, which is presumably no longer liquid, as the present claim language appears to require the limitation to remain a liquid vehicle after it is cured.

With respect to claims **17 & 20**, they require by the claims from which they depend that the polymerized (meth)acrylate be liquid, but it is unclear to the examiner under what conditions this would be so or possible, such that it appears probable that the condition of this precursors is being mixed up with the results of the product, so describing a product of uncertain structure & composition, i.e. vague & indefinite.

2. The following is a quotation of the appropriate paragraphs of **35 U.S.C. 102** that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 **U.S.C. 103(a)** which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1, 5-7, 9-12 & 16-17** are rejected under 35 U.S.C. **102(b)** as being anticipated by **DAIMON et al.** (4,891,264).

Claims 2-4 & 13-15 are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Daimon et al** (264).

Daimon et al. teach surface treating a composite substrate in order to enhance the adhesion of the "curing composition" that is applied thereto, where the means of treatment includes plasma polymerization treatment. The composition applied to the treated surface may be cross-linked and cured by one of a variety of radiation means, where curing options are inclusive of UV & electron beam, and where the compositions may be composed of various curable resins inclusive of epoxy resins and acrylate resins, as well as various reactive diluents, such as various glycol diacrylates, etc., various pigments or dyes, and various other modifiers. Means of applying the curable composition are taught to include "coaters of various print types such as screen, offset, gravure, letter press, flexographic printing, etc." While Daimon et al. do not disclose that their curing compositions may be ink, the teachings of using pigments and dyes in the compositions, and of deposition via various claimed printing techniques, would have been suggestive to one of ordinary skill in the art that the compositions taught by this reference are suggestive of or encompass inks, particularly the specifically claimed radiation curable gravure or radiation curable flexographic ink, as Daimon et al. teach applying their curable compositions via gravure or flexographic printing techniques, which either implies that inks were used, since printing is occurring, or would have made it obvious to one of ordinary skill in the art to use an ink comprising taught compositions, since one is printing. With respect to lithographic printing, it is another standard printing technique, and the disclosure is explicitly not limited to the specific printing techniques listed, hence it would've been further obvious to one of ordinary skill in the art that virtually any conventional printing technique is contemplated to be useful, thus making lithographic techniques another obvious option. Note with respect to product claims 13-15, where the inks employed are described by the technique by which they were meant to be applied, that this requires no specific composition or structure that can be determined by the examiner, and can be considered to read on any radiation curable ink composition in

the claimed product. In Daimon et al., particularly see abstract; col. 2, lines 5-26 & 36-54; col. 4, lines 44-col. 5, lines 35 & 51-55; col. 6, lines 50- 68, esp. 60-62; col. 7, lines 10-24 & 36-52; col. 8, line 59-col. 9, line 8.

4. **Claims 1, 5-7, 9, 11-12 & 16-17** are rejected under 35 U.S.C. **102(b)** as being anticipated by **VARGO et al**.(6,428,887 B1).

Claims 2-4, 10 & 13-15 are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Vargo et al**.

Vargo et al. disclose adhesive-oxyhalopolymer composites, where an oxyhalopolymer layer with functionality groups that provide sites to which to bond the adhesive material, may be deposited via a plasma polymerization process onto the substrate. The adhesive is to be applied may include polyacrylates or epoxides, may be cured by radiation such as UV, may be prepared such that they are transparent, colored or opaque, and it is mentioned that they may be applied by gravure coating techniques. Vargo et al. does not mention that their compositions may be inks, nor particularly suggest flexographic or lithographic techniques, but the reference provides for individual components required by ink compositions, where it is noted that being an adhesive does not prohibit a composition from also been described as a member of the class of inks, hence analogous to above discussion, it would have been obvious to one of ordinary skill in the art to employ taught colored compositions that are of the consistency that may be called an ink, especially as gravure coating, i.e. a printing technique, may be employed, thus is suggestive of ink. It is further noted that the deposition techniques taught by Vargo et al. are inclusive of "... nip rolled, reverse rolled, gravure coated, UV coated or by any practical method", hence the application of other conventional printing techniques such as the claimed flexographic or lithographic techniques would have been obvious to one of ordinary skill in the art, as they would have been expected to be effective given the taught broad applicability to generic printing & to a variety of specific printing techniques. In Vargo et al., particularly see the abstract; col. 1, lines 11-16; col. 6, lines

34-45+; col. 7, lines 6-13 & 31-56; col. 9, line 35-col. 10, line 38, esp. 24-38; col. 12, lines 8-25 & 55-63; Ex. 1, esp. col. 13, lines 53-62 & table 1.

5. **Claims 2-4 & 13-15** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Daimon et al** (264), in view of **McGee** (2003/0207121 A1).

The secondary reference to **McGee** explicitly shows UV curable inks that may be deposited by any known routine process, that is taught to be inclusive of gravure or flexographic or lithographic methods, and is inclusive of the teaching to promote adhesion of the curable inks through deposition of polymers with ethnically unsaturated moieties, thus is cumulative to and supportive of the above arguments concerning the obviousness of the radiation curable compositions being inks and the techniques by which it would have been obvious to apply them. In MCGEE, particularly see abstract; [0092]; Ex. 1, [0094]; Ex. 2, [0101].

6. **Claims 8 & 18-20** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Daimon et al** (264), optionally considering **McGee**, as applied to claims 1-7 & 9-17 above, and further in view of **Goodwin et al** (WO 02/28548 A2) or **Willis et al**. (WO 00/78469 A2) or **Kamel et al**. (5,080,924).

Daimon et al., while teaching the use of plasma polymerization to promote adhesion of a layer inclusive of radiation curable deposits that are cross-linking and cured thereon, does not teach any specific materials for the plasma polymerization adhesion layer. However, all the secondary references to Goodwin et al or Willis et al. or Kamel et al, teach the deposition of plasma polymerized coatings that promote adhesion of subsequent layers or deposits, where the plasma deposited layer has reactive or functional groups on its surface to provide such effects.

Specifically, **Willis et al**. suggest plasma polymerization of material such as glycidyl methacrylate, which retains reactive epoxy groups after the plasma polymerization deposition, for use in the adhesion processes. In WILLIS et al., particularly see abstract; page 1, lines 1-8; page 3, lines 4-22;

page 6, lines 22-page 7, lines 25; page 8, lines 17-34; page 9, line 22-page 10, line 15 & 33-35; Ex. 1, pages11-13, esp. page 11, lines 5-17.

Goodwin et al. describes a plasma process, which may deposit organic materials inclusive of glycidyl methacrylate or halogenated alkenes on a wide variety of substrates, inclusive of plastics or metals or woven or nonwoven materials, etc., where the plasma polymer may be employed as an adhesion promoter. In GOODWIN et al., particularly see abstract; page 2, [0004-7]; page 3, [0009]; page 4, [0011], esp. lines 8-20 & 22-25; page 6, [0014], esp. lines 30-32; page 8, esp. lines 1-3, 18-20 & 25-27.

Similarly, **Kamel et al**. plasma activates or cleans the surface, then plasma deposits and polymerizes materials inclusive of polyacrylic acid or the like, which provide pendant terminal carboxylic acid groups that are available to react, particular via cross-linking to desired organic materials. In KAMEL et al., particularly see abstract; col. 6, lines 3-68; col. 7, lines 1-13 & 50-col. 8, lines 5 & 33-col. 9, line 15.

Given the teachings in any one of these secondary references, it would have been obvious to one of ordinary skill of the art that one employs the taught plasma polymerization to provide adhesion promotion for the radiation curable coating to be crosslink and cured thereon, to employ material suggested by these secondary references in the taught plasma polymerization process to enable the taught adhesion in cross-linking effects, as the secondary references are seen to provide cross-linking means via their taught functional groups that remain on the surface after the taught plasma polymerization of materials such as the various epoxy and/or acrylate compounds, hence are consistent with requirements of the primary reference.

7. **Claims 8 & 18-20** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Vargo et al**., as apply to claims 1-7 & 9-17 above, and further in view of **Goodwin et al**. (discussed above).

While **Vargo et al**. suggests plasma polymerization to form oxyhalopolymers with oxygen-functional groups available for bonding and adhesion of adhesives, and note that a broader range of

thermosetting materials or thermoplastic materials may be employed, which may include epoxy type resins or methacrylic acid, etc., Vargo et al. do not teach the use of plasma polymerized epoxies or acrylates to provide the functionalized adhesion promoting layer, however **Goodwin et al**. shows that epoxyacrylate compounds and halogenated compounds can be equivalently employed when deposited by plasma polymerization for adhesion purposes, hence it would've been obvious to one of ordinary skill in the art to employ such alternatives given their shown equivalence and expected analogous effects on adhesion.

8. **Other art** of interest cited in the PCT included: **KOLOSKI et al**. ((6,608,129 B1): abstract; col. 17, lines 6-30, esp.14-17; col. 19, lines 6-16; col. 20, lines 41-65; col. 21, lines 39-54; col. 22, lines 4-19; col. 31, lines 14-42) provides teachings of glow discharge polymerization of organic molecules which retain relevant functional groups, such as oxyfluorides, which may then be infused with radiation curable polymeric material, thus overlapping with above applied Daimon et al. or Vargo et al., but redundant thereto; **LAKSIN et al**. ((6,236,361 B1): abstract; col. 1, lines 5-25; col. 2, lines 55-col. 3, line 21; col. 6, lines 45-67+; col. 7, lines 20-68+, esp. lines 23, 44-45 & 50-61) teach printing via gravure or flexographic techniques of actinic radiation, i.e. electron beam or UV, curable polymerizable inks; **CHEN** ((4,143,949): abstract; col. 2, lines 1-15 & 56-col. 3, line 39; col. 6, lines 3-40) teach forming hydrophilic coating via plasma polymerization of (meth)acrylates or silicones; **AFFINITO** ((6,228,434 B1): abstract; col. 2, lines34-40 & 65-col. 3, line 20; col. 5, esp. lines 35-52) teach plasma polymerization via cross-linking of monomers in a glow discharge; **BADYAL et al**. ((2002/0114954 A1): abstract; [0002]; [0005-8]; [0013]; [0031-33]) teach plasma polarization of fluorocarbons or acrylic acid monomers; **BILYK et al**.((6,800,331 B2): abstract; col. 2, lines 41-57; claims, esp. 31) teach that plasma treatment of plasma polymers are known to be useful to improve bonding of subsequent polymer coating; **WU** ((4,587,156): abstract; col. 3, lines 11-col. 4, line 44) have teachings with respect to application of ink via gravure roll or flexographic printing, with initial use of a primer; **TSUNASHIMA et al**.

((4,908,277): abstract; col. 2, lines 25-30 & 67-col. 3, lines 15 & 39-68; col. 5, lines 47-66; col. 7, lines 30-47; col. 8, lines 47-53) teaches solution coating an in adhesion layer with functional groups maintained on its surface, then applying UV curable ink via gravure the roll; **HERGENROTHER et al.** ((5,750,206): abstract; col. 3, lines 24-col. 4, line 67; and claims) teaches a plasma deposited hydrocarbon layer having a photoactive hydrophilic polymer deposited thereon that is activated by UV light; **GOTOH et al**. ((5,132,152): abstract; figures 1-2; col. 6) and **KUNZLER et al**. ((2004/0001181 A1): abstract; [0016] & [0019-20]) have teachings of relevant photocured layers, the latter including ink next to plasma polymer layers, but in the opposite order from claimed.

9. With respect to the **IDS of 12/24/2008**, **Muller-Reich et al**. (WO 2004/035857 A2) is the most relevant, as the English abstract teaches plasma polymerization deposition of a polymer layer retaining C=C &/or C ≡C bonds, i.e. on polymerized functional groups, but the abstract while suggesting this material is used as an adhesive layer, lacks teachings on further coatings applied thereto, radiation cured or not (whether such a teaching is present in the rest of the German document is unknown). **Yasuda et al**. (4,980,196) provides teachings of plasma deposition of polymers that are desired to be reactive with the subsequent primer coating (inclusive of multiple layers of plasma polymerized deposits), but does not disclose whether or not such reactivity is due to unpolymerized functional groups & provides the option of plasma functionalizing the surface via a post-treatment with none polymerizing gas, plus the subsequently applied primer is not taught to include radiation curable coatings, providing examples of thermal cure, etc. The teachings of the cited German reference by **Droschel** are unreadable by the examiner.

10. **Any inquiry** concerning this communication or earlier communications from the examiner should be directed to **Marianne L. Padgett** whose telephone number is **(571) 272-1425**. The examiner can normally be reached on M-F from about 9:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marianne L. Padgett/
Primary Examiner, Art Unit 1792

MLP/dictation software

12/16 & 17/2009